MCESA
Maricopa County Education Service Agency

Handout to Accompany Webcast 2:

Understanding Item Specifications and Depth of Knowledge

Reflection Questions

Why would a structured conversation be a beneficial activity?

In what ways do students need to be working differently to be prepared for these tests?

What resources and support do you need?

Why is it important to consider the DOK essence of a standard?

Depth of Knowledge

Level 1	Level 2	Level 3	Level 4
Level 1 involves recall and the response is automatic. Students either know the answer or not. Level 1 activities require students to demonstrate a rote response, follow a set of procedures, or perform simple calculations.	Level 2 activities require students to engage in mental processing and reasoning beyond a habitual response. These activities make students decide how to approach the problem, involving interpreting and developing relationships among concepts.	At Level 3 students are providing evidentiary support and reasoning for conclusions they draw. In most instances, having students explain and justify their thinking is at level 3. Level 3 activities have more than one correct response or approach to the problem.	Level 4 requires those tasks in which students must demonstrate reasoning, planning and developing connections within and beyond a content area. These activities usually occur over an extended period of time.
– Recall elements and details of story structure, such as sequence of events, character, plot and setting. – Conduct basic mathematical calculations. – Label locations on a map. – Represent in words or diagrams a scientific concept or relationship. – Perform routine procedures like measuring length or using punctuation marks correctly. – Describe the features of a place or people. – Demonstrate fingering of an instrument.	– Identify and summarize the major events in a narrative. – Use context cues to identify the meaning of unfamiliar words. – Solve routine multiple-step problems. – Describe the cause/effect of a particular event. – Identify patterns in events or behavior. – Formulate a routine problem given data and conditions. – Organize, represent and interpret data. – Play an instrument.	– Support ideas with details and examples. – Use voice appropriate to the purpose and audience in writing. – Identify research questions and design investigations for a scientific problem. – Develop a scientific model for a complex situation. – Determine the author's purpose and describe how it affects the interpretation of a reading selection. – Apply a concept in other contexts. – Compose melodies. – Plan art projects.	– Conduct a project that requires specifying a problem, designing and conducting an experiment, analyzing its data, and reporting results/solutions. – Apply a mathematical model to illuminate a problem or situation. – Analyze and synthesize information from multiple sources. – Describe and illustrate how common themes are found across texts from different cultures. – Design a mathematical model to inform and solve a practical or abstract situation. – Choreograph and perform a dance.

Courtesy of Southern Nevada Department of Professional Development and Webb, Norman L. and others. "Web Alignment Tool" 24 July 2005. Wisconsin Center of Educational Research. University of Wisconsin-Madison. 2 Feb. 2006. <http://www.wcer.wisc.edu/WAT/index.aspx>.

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Script of Webcast 2

Understanding Item Specifications and Depth of Knowledge

Welcome. The purpose of this webcast is to help you describe the content of the item specifications that accompany the post-assessments developed by MCESA for art, music, theater, dance and PE. This webcast is designed to be watched with a small group of people. It will lead you through a series of activities to help you process the information on the documents. To participate in the activities, you will need a copy of the item specifications and the assessment blueprint for your content area. You will also need the handout that accompanies this webcast.

The first activity is to read the documents and have a structured conversation. The conversation structure suggested here is called First Turn/Last Turn and was developed by Wellman and Lipton. These are the steps to this strategy. Everyone in the group will independently read through the entire item specification document and assessment blueprint. As you read, put a star by 2-3 things. They could be points of agreement, disagreement, provocative statements, interesting facts or curiosities. When everyone is done reading, then you will have a structured conversation. The person who sits closest to the door will go first and share his or her comment on ONE of the things that was starred. Then going around the table, each person gives a reply comment to the original comment. There can be NO cross-talk out of turn. After everyone has shared a reply comment, then the next person at the table gets to initiate a new conversation on one of their starred comments. Continue like this until everyone has had a chance for initiating a series of commentary. At the end, you can allow for some cross-talk. Pause the webcast now to complete this activity.

Now that you have had a chance to read and discuss the content of the item specifications and assessment blueprints, take a moment to reflect on the activity that you just did. Consider why a structured conversation would be beneficial. Pause the webcast here to discuss this with your group. Record your comments on the handout.

Using a structured conversation yields a deeper conversation. Participants must listen more carefully to the person speaking. All participants are required to be equal contributors to the conversation. A structured conversation is an appropriate technique to use in the classroom to help students assimilate and articulate the content of the class. Also, please take a moment to reflect on the content of the item specifications. Consider these two questions.

> In what ways do students need to be working differently to be prepared for these tests?
> What resources and support do you need?

Pause the webcast here to discuss this with your group. Record your comments on the handout.

Next we will examine and consider the far right column of the item specifications. This column lists the DOK of the standard as a whole. The handout accompanying this webcast has written information about DOK for your reference. DOK means Depth of Knowledge. It was developed by Dr. Norman Webb, senior research scientist at the National Institute for Science Education. Many states use DOK to evaluate the rigor of their state assessments. The DOK scale of 1-4 measures the complexity of the knowledge and thinking elicited from students on tasks.

LEVEL ONE is RECALL – simply the recall of a fact, information, or procedure. For example, students name the equipment used in a given sport.

LEVEL TWO is SKILL/CONCEPT – this means the use of information or applying basic skills or conceptual knowledge. For example students perform simple steps in dance class.

LEVEL THREE is STRATEGIC THINKING –this level includes more reasoning, developing a plan, connecting ideas and explaining thinking. For example, students plan their own art project given teacher defined media and themes.

LEVEL FOUR is EXTENDED THINKING – this level requires an investigation, the collection of data or information, analysis of results and communication of conclusions. It is typically a task over an extended period of time. For example, students compose a piece of music with 2 or more voices.

It is important to not confuse DOK with difficulty. A test question can be very difficult, but not require depth of thinking. For example, consider this typical *Jeopardy* question – What are the names of the 3 longest reigning presidents of African countries in the last 50 years? It is the domain of knowledge that makes this question hard, not the thinking. Basically, this question is still asking you to recall factual information. When DOK is applied to the whole standard on the item specification document, we use the word essence. That is because the standards are not discrete tasks that students are performing. To determine the essence, you would consider the scope and quantity of the *content* in the standard, the *level* of the learner such as the grade and developmental capability of the age, and the *context* of how the standard could be enacted such as the type of test that is being developed. For example, consider this standard.

Classifying instruments as band, orchestra or classroom.

The team of teachers who wrote the item specifications said it was DOK 2. Their thinking or conversation may have sounded like this. "This is a third grade standard. So classifying is a developmentally appropriate verb for them, but it may need to be supported with manipulatives or pictures, not just a list of words on a Venn diagram. The standard does not specify how many instruments it is, but classroom experience tells me that 10-15 would be appropriate. Students will have to know the instruments and then apply that knowledge to a grouping task. If they are simply sorting pictures of instruments into the three pre-defined categories, then I would say this is DOK 2." Here is another example from 8th grade art standards.

Describe what tools, materials, and techniques were used to create artwork from diverse cultures and times.

What DOK level do you think it is? The team of teachers who wrote these specifications said it was DOK 1. Even though the verb says describe which may seem like application, the essence of the standard is to simply state the tool, material or technique. Also, as students have more experience with content, the level of thinking to demonstrate their knowledge decreases. Because this standard is for eighth graders, it is appropriate to expect it to be a lower DOK than it would be for younger students.

Now is your chance to think more deeply about the DOK of your standards with another group activity. First, you will go around the table and assign 1-2 pages of the item specifications to each person. Next, everyone will silently read the standard and decide what you think the DOK should be. Try to cover up or not look at the actual DOK until you have made your decision. Once everyone has determined the DOK for their assigned pages, begin taking turns to share a rationale for why each standard has that DOK essence. Discuss any difference of opinion you may have in order to determine why the teachers who wrote the item specifications settled on the listed DOK. Pause the webcast now to complete this activity.

Now that you have examined the DOK essence listed on the item specifications, consider for a moment: Were there any DOK labels that surprised or confused you? It is appropriate that you may not agree with every DOK essence listed. If this happens, try to imagine the conversation that occurred about the content, level and context of the standard to help you understand how the DOK essence was chosen. Please remember that item specifications were living documents and went through several revisions with multiple teams of teachers before the final versions were issued.

In conclusion, please take a moment to discuss the last reflection question on the handout. Why is it important to consider the DOK essence of a standard? Thank you for your participation.